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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,839	02/25/2004	Parviz Tayebati	TAYE-0509	2957

7590 12/21/2005

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EXAMINER
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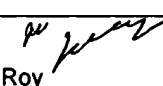
VAN ROY, TOD THOMAS

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/786,839	Applicant(s) TAYEBATI ET AL. 
	Examiner  Tod T. Van Roy	Art Unit 2828

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Oh et al. (US 6810047).

With respect to claim 6, Oh discloses a method of steering an optical beam, the method comprising: providing a pair of optical prism components comprising thermo-optic material (fig.6 #309, broken into multiple component pieces, col.5 lines 11-15, index is adjustable), the pair of optical prism components configured for steering the optical beam (col.5 lines 5-22, fig.3) so as to allow coupling of spatially and spectrally offset lasers (device would function under these conditions) to a common optical fiber (fig.6 #303), and actuating the pair of optical prism components by selectively applying to at least one of the optical prism components of the pair at least one of heat, an electric field, and a magnetic field (col.5 line 6, electrical control, which would inherently alter the temperature of the semiconductor material, and in turn alter the electric field as the voltage varies across the device).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh et al. (US 6810047) in view of Farmer et al. (US 6836487).

With respect to claim 1, Oh teaches an apparatus for optically steering an optical beam, the apparatus comprising: a pair of optical prism components (fig.6 #309, broken into multiple component pieces) arranged together with a diffraction grating (fig.6 #304) so as to allow efficient coupling of a laser diode (fig.6 #301) to an optical fiber (fig.6 #303). Oh does not teach the use of an array of spectrally and spatially separated diodes. Farmer teaches a laser steering device comprising an array of laser diodes (fig.4 #10) that are both spectrally and spatially separated (fig.4 spatial separation can be seen, and would be inherent in a laser diode bar, spectral separation seen in fig.2c),

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including a diffraction grating (fig.4 #43) and an optical fiber (fig.4 #45). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Oh with the laser array of Farmer in order to increase the tuning range output to the fiber (as Oh's device is used for tuning), as well as to allow for an increase in total output power.

With respect to claims 2-3, Oh further teaches the pair of optical prism components further comprises a thermo-optic material (col.5 lines 11-15, index is adjustable), and further comprises adjustment means for adjusting the temperature (col.5 line 6, electrical control, which would inherently alter the temperature of the semiconductor material, and in turn alter the electric field as the voltage varies across the device) of at least one of the optical prism components of the pair of optical prism components so as to adjustably steer the optical beam (col.5 lines 5-22, fig.3).

With respect to claim 4, Oh and Farmer teach the apparatus of claim 1, and Farmer further teaches the use of 1-N diodes (fig.4), but does not specify the use of at least 12. Farmer's teaching of 1-N range reads on the claimed 12 or more, and furthermore it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the appropriate number of laser diodes based on the desired power output as a matter of engineering design choice.

With respect to claim 5, Oh teaches a method of optically steering an optical beam, the method comprising: a pair of optical prism components (fig.6 #309, broken into multiple component pieces) comprising a thermo-optic material (col.5 lines 11-15, index is adjustable), the pair of optical prism components configured to steer the beam

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received from a laser diode (fig.6 #301), and a diffraction grating (fig.6 #304) arranged with the pair of optical prism components so as to couple the beam to an optical fiber (fig.6 #303), actuating at least one of the pair of optical prism components so as to steer the beam (col.5 lines 3-22). Oh does not teach the use of an array of spectrally and spatially separated diodes. Farmer teaches a laser steering device comprising an array of laser diodes (fig.4 #10) that are both spectrally and spatially separated (fig.4 spatial separation can be seen, and would be inherent in a laser diode bar, spectral separation seen in fig.2c), including a diffraction grating (fig.4 #43) and an optical fiber (fig.4 #45). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Oh with the laser array of Farmer in order to increase the tuning range output to the fiber (as Oh's device is used for tuning), as well as to allow for an increase in total output power.

With respect to claim 7, Oh and Farmer teach the apparatus as outlined in the rejection to claim 1, and Oh further teaches a collimating lens configured to receive at least one of the beams and direct it toward the prisms (fig.6 #302a, col.5 lines 30-31), and a focus lens which receives light from the grating and focus the light towards the fiber (fig.6 #302b, col.5 lines 40-41).

### ***Conclusion***

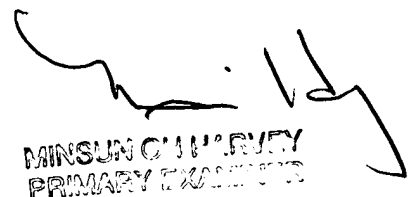
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR



MIN SUN C HARVEY  
PRIMARY EXAMINER